What is claimed is:

1. A method of treating a site comprises:

sparging the site with an air/ozone gas stream delivered with a hydroperoxide, which is a substantial byproduct of a reaction of a contaminant present in the aquifer or soil formation with the ozone.

2. The method of claim 1 wherein the air/ozone gas stream is delivered through a microporous diffuser that delivers the air/ozone gas in microbubbles.

3. The method of claim 1 wherein the hydroperoxide is selected from the group consisting of formic peracid, hydroxymethyl hydroperoxide, 1-hydroxylethyl hydroperoxide, and chloroformic peracid or their derivatives.

4. The method of claim 1 wherein the hydroperoxide is selected based on the type of contaminant present in the site.

5. The method of claim 1 wherein the hydroperoxide is delivered as a surface layer over microfine bubbles including air/ozone gas stream.

6. The method of claim 1 wherein sparging comprises:

introducing air including the oxidizing gas into the microporous diffuser.

7. The method of claim 1 wherein the sparging comprises:

introducing hydroperoxide as a liquid into the microporous diffuser.

8. The method of claim 1 wherein the microporous diffuser includes promoters or nutrients such as catalyst agents including iron containing compounds such as iron silicates or palladium containing compounds such as paladized carbon and platinum.

9. The method of claim 1 wherein the microporous diffusers have a pore size in the range of about 1 to 200 microns.

10. The method of claim 1 wherein the hydroperoxides are byproducts of a reaction involving the volatile organic compound with ozone.

11. An apparatus for treating subsurface water comprises:

a well having a casing with an inlet screen and outlet screen to promote a recirculation of water into the casing and through surrounding ground area.

at least one microporous diffuser disposed in the injection well that allows delivery of a first and second fluids with one of the fluids forming a coating over the other of the fluids;

an ozone generator;

an air compressor and compressor/pump control mechanism to deliver ozone (O_3) from the ozone generator to the microporous diffuser as one of the fluids;

a source of the liquid hydroperoxides selected from the group consisting of formic peracid, hydroxymethyl hydroperoxide, 1-hydroxylethyl hydroperoxide, and chloroformic peracid or their derivatives; and

a feed mechanism to deliver the selected liquid hydroperoxide to the microporous diffuser as the second one of the fluids.

12. The apparatus of claim 11 wherein the feed mechanism is a pump.

13. The apparatus of claim 11 wherein air ozone is delivered to a central inner chamber of the microporous diffuser and the liquid hydroperoxide is delivered to an outer chamber of the microporous diffuser.

14. The apparatus of claim 11 wherein the microporous diffuser has a porosity characteristic that permits bubbles of 5-200 microns diameter to be released into the surrounding formation.

15. An apparatus for treating subsurface water comprises:

an sparging apparatus that is disposed through a soil formation, the sparging apparatus comprising:

a microporous diffuser positioned through a bore hole disposed through the soil formation or of a type that is injected into the soil formation;

a treatment control system comprising:

an air compressor that feeds a mixture of air/ozone into the microporous diffuser and

a feed mechanism to supply to the diffuser a liquid decontamination agent comprising a hydroperoxide.

16. The sparging apparatus of claim 15 wherein the microporous diffuser is disposed through a vadose zone and an underlying aquifer in the soil formation.

17. The sparging apparatus of claim 15 wherein the microporous diffuser is coupled to appropriate piping to connect sources of decontamination agents to the microporous diffuser.

18. The sparging apparatus of claim 15 wherein when fluid is injected through the microporous diffuser the microporous diffuser enables a water pattern to evolved about diffuser where light bubbles tend to travel upwards and heavier bubbles tend to travel downwards.

19. The apparatus of claim 15 wherein the microporous diffuser has a porosity characteristic that permits bubbles of 5-200 microns diameter to be released into the surrounding formation.